CLAIMS

What is claimed is:

1. An optical coupler (100) comprising:

a connector housing (102);

a first cover (106) supporting a reflecting device (114) and fastened to the connector housing (102);

a second cover (104) fastened to the connector housing (102);

a first connector (108) fastened to the connector housing (102), for supporting a first aspherical lens (300); and

a second connector (110) fastened to the connector housing (102), for supporting a second aspherical lens (300), whereby the first and second lenses in combination with the reflecting device redirect and focus substantially all optical energy entering the first lens to exit from the second lens, and vice-versa.

2. The optical coupler of Claim 1, wherein the first and second covers are removably fastened to the connector housing.

3. The optical coupler of Claim 1, wherein the first and second connectors are removably fastened to the connector housing.

4. The optical coupler of Claim 1, wherein the first and second covers comprise a polycarbonate material.

5. The optical coupler of Claim 1, wherein the connector housing comprises metal.

6. The optical coupler of Claim 1, wherein first and second covers fasten to the connector housing with a snapped connection.

7. The optical coupler of Claim 1, wherein the first and second covers comprise a step region (120) that engages with walls of the connector housing.

8. The optical coupler of Claim 1, wherein the first cover (106) comprises an alignment mechanism for supporting the reflecting device (114).

9. The optical coupler of Claim 8, wherein the alignment mechanism (106) comprises a block structure with an aperture (124).

10. The optical coupler of Claim 1, wherein the reflecting device (114) comprises a mirror.

11. The optical coupler of Claim 1, wherein the first and second covers form a liquid impervious seal when fastened to the connector housing.

12. The optical coupler of Claim 1, wherein the first and second connectors comprise one of a ferrule connector, a subscriber connector, a lucent connector, fiber distribution data interface connector, and a straight tip connector.

13. A method for coupling and redirecting optical energy between two optical waveguides oriented at a predetermined angle relative to each other, comprising the steps of:

receiving optical energy from a first optical waveguide (1520);

expanding the received optical energy into a collimated beam of optical energy with a first aspherical lens (1525);

propagating the collimated beam towards a reflecting device (1530);

redirecting the collimated beam with the reflecting device at a predetermined angle (1535);

focusing the reflected and collimated beam to a size appropriate for a second optical waveguide with a second aspherical lens (1540); and

propagating the focused optical energy away from the housing in the second optical waveguide (1545).

14. The method of claim 13, further comprising the steps of:

forming a liquid impervious and heat tolerant optical coupler by:

attaching the first optical waveguide to a first connector (1505);

attaching the second optical waveguide to second connector (1505);

attaching the first and second connectors to a housing (1507);

attaching a first cover to the housing (1510); and

attaching a second cover to the housing (1515).

15. The method of claim 13, further comprising the steps of:

forming a liquid impervious and heat tolerant optical coupler by:

coupling first and second connectors to a housing (1505);

snapping a first cover to the housing (1510); and

snapping a second cover to the housing (1515).

16. The method of claim 13, wherein the step of redirecting the collimated beam with the reflecting device at a predetermined angle further comprises redirecting the collimated beam with a mirror.

17. The method of claim 13, wherein the step of redirecting the collimated beam with the reflecting device at a predetermined angle further comprises redirecting the collimated beam at an angle comprising approximately ninety degrees.